

Zero Retries issue 0157 2024-06-21

Zero Retries is an independent newsletter promoting technological innovation that is occurring in Amateur Radio, and Amateur Radio as (literally) a license to experiment with and learn about radio technology. Now in its third year of publication, with 1800+ subscribers.

About Zero Retries

Steve Stroh N8GNJ, Editor

Jack Stroh, Late Night Assistant Editor Emeritus

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Web version of this issue - <https://www.zeroretries.org/p/zero-retries-0157>

Request To Send

Commentary by Editor Steve Stroh N8GNJ

Paid Subscribers Update

My thanks to **Scott Honaker N7SS** for becoming an Annual Paid Subscriber to Zero Retries this past week!

Financial support is a real vote of confidence for continuing to publish Zero Retries.

Major Conference Countdowns

- [HAM RADIO 2024](#) in Friedrichshafen, Germany on 2024-06-28 thru 30 - next weekend. I've received some hints that there will be some interesting projects shown there. Zero Retries readers that will be attending HAM RADIO 2024, please provide some reports of Zero Retries Interesting projects and products.
- [JARL Ham Fair 2024](#) in Tokyo, Japan on 2024-08-24 and 25, in 9 weeks!

Attendees at HAM RADIO 2024 might also be interested in attending the **10th Software Defined Radio Academy** on 2024-06-29:

The programme for the 10th Software Defined Radio Academy (June 29) in Friedrichshafen is ready. Because of possible short notice changes please check the following website:

<https://2024.sdra.io/pages/programme.html>

We have assembled an attractive programme again for this anniversary year and we are looking forward to see you all either on site in Friedrichshafen or in the live stream. The SDRA starts at 10:00 in the room "Berlin" in the Conference Zone East. For HAMRADIO visitors there is no entrance fee, and visiting individual talks is just perfectly fine. You can find the stream at:

<https://youtube.sdra.io>

BR / VY73
Markus
DL8RDS

My thanks to Alexander von Obert DL4NO for forwarding this notice.

See the Zero Retries Guide to Zero Retries Interesting Conferences for other such events.

Minor Case of Summer Doldrums

This week I had a minor case of the summer doldrums where I didn't get a lot done (that's of measurable progress), either on Zero Retries and its associated projects, or in N8GNJ Labs. Thus the bulk of the content of this issue will be ZR > BEACON short mentions.

I guess I just "soaked in" the first full week of mostly sun and no rain and only brief cloudy overcast, and it took this week for my psyche to switch fully over to "enjoy the summer" mode. Up here in the

Pacific Northwest corner of North America, we've been spared (thus far) the punishing "heat dome" that is enveloping much of the US, and for that, we're grateful.

ARRL Field Day This Weekend

This weekend is ARRL Field Day in the US. I have no plans to attend any of the festivities in my area, mostly from lack of enthusiasm for the overall experience.

At the last ARRL Field Day event I attended, a friend had an Icom IC-705 and it seemed an idea rig for (my idea of) a casual Field Day experience. I had hoped by now to have procured an IC-705, and if I did have one, that would probably motivate me to get on the HF bands for Field Day.

Instead I think I'll treat this weekend as an Amateur Radio holiday and work solely on some long-deferred Amateur Radio projects in N8GNJ Labs.

ARDC 44Net VPN Beta Testing - I'm In!

After a few "nudges" regarding my request to participate in the 44Net VPN Beta Test, I finally received acknowledgement that my request had been accepted and some basic instructions on how to get started. I haven't done anything quite yet, but I will do the requested actions this coming week and start actively learning about how to use 44Net IPv4 addresses. One of the first things I'm going to do is to set up an "air gapped" LAN within N8GNJ Labs with a dedicated computer. I'll report on my progress here in Zero Retries.

Battle of Britain: The Race for Radar - Highly Recommended!

I'm a very casual history fan, and lately my interests have been focused on the World War II era.

On Prime Video, I discovered [Battle of Britain: The Race for Radar](#), and it was fascinating - extremely Zero Retries Interesting!

I was aware that the only way that the UK was able to effectively defend themselves against the German Luftwaffe bombing campaign (The Battle of Britain) in 1940 was to build "The Dowding System" - a RADAR and Command and Control network that directed the limited UK fighter groups towards the highest concentration / greatest threats of Luftwaffe bombers. But I knew nothing of the technical details of the RADAR system, which was named [Chain Home](#). This documentary explained the technical details including that Chain Home barely worked at first, and was, *by design*, "third rate" - not the best technical solution, but a system that would be at least minimally effective and most importantly *could be constructed in time to be ready when it would be needed most*.

One of the most interesting technical details to me was that all of the transmitters in the system transmitted continuously and in phase with each other, transmitting 25 pulses per second. The synchronization system chosen was the simple expedient of using the national power grid's synchronized 50 Hz (cycles, then) AC line frequency to synchronize the RADAR transmitters, and it worked!

Another detail that was interesting to me was that the Germans were aware of the very powerful transmissions from the Chain Home, but never understood how it functioned. The Germans

eventually concluded that the transmissions were spurious leakage from the UK national power grid, and thus discounted the idea that the UK had a terrestrial RADAR system.

The documentary makes a compelling case that the creation of Chain Home and The Dowding System was a primary influence in the outcome of World War II. If the UK had not been able to repel the majority of Luftwaffe bombers, German bombing may have reduced the UK's defensive capabilities and made Germany's "Operation Sea Lion", the seaborne invasion of the UK, viable. If the UK was successfully invaded by Germany, the US would not have been able to use the UK as a staging base for Operation Overlord, the Allies invasion of France and into Europe.

I'm certainly not positing that my ancestral fellow radio techies "won World War II"... but after viewing this documentary, we radio techies were very active participants in contributing to the Allies victory in World War II... and we're present in current battles, and will be present in future battles.

73,

Steve N8GNJ

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Just In Time for Meadow Day Anniversary - Starlink Mini

By Steve Stroh N8GNJ

One year ago, on the same weekend as ARRL Field Day, I conducted my "Meadow Day" test of using Starlink as (simulated) emergency communications, similar to the premise of ARRL Field Day. One year later, we'll soon have a better alternative to "fixed Starlink" for real emergency communications - Starlink Mini.

Background on "Meadow Day" 2023 - <https://www.n8gnj.org/2023/06/meadow-day-2023.html>

Meadow Day 2023 was conducted with a bulky "Gen 2" Starlink antenna and router. Those units are intended for permanent fixed installation to provide service to a typical household, but somewhat usable for "luggable" use with a suitable (mains-equivalent) power supply. I made it work, and Starlink now offers [units intended for mobile use](#) such as affixing it horizontally to the roof of a boat or a recreational vehicle or a semi tractor.

But now there is another variant of Starlink that's far more conducive to my "Meadow Day" scenario - *Starlink Mini*.

All this information about Starlink Mini comes from a great (new to me) Zero Retries Interesting [website](#) and [YouTube channel](#) - **StarlinkHardware**.

StarlinkHardware.com is an unofficial resource for SpaceX Starlink satellite internet users. We are not affiliated with Starlink or SpaceX in any way.

Founded in 2021, our goal is to provide helpful information, tutorials, and advice for Starlink users. We are Starlink fans and users, and aim to help others get the most out of the system.

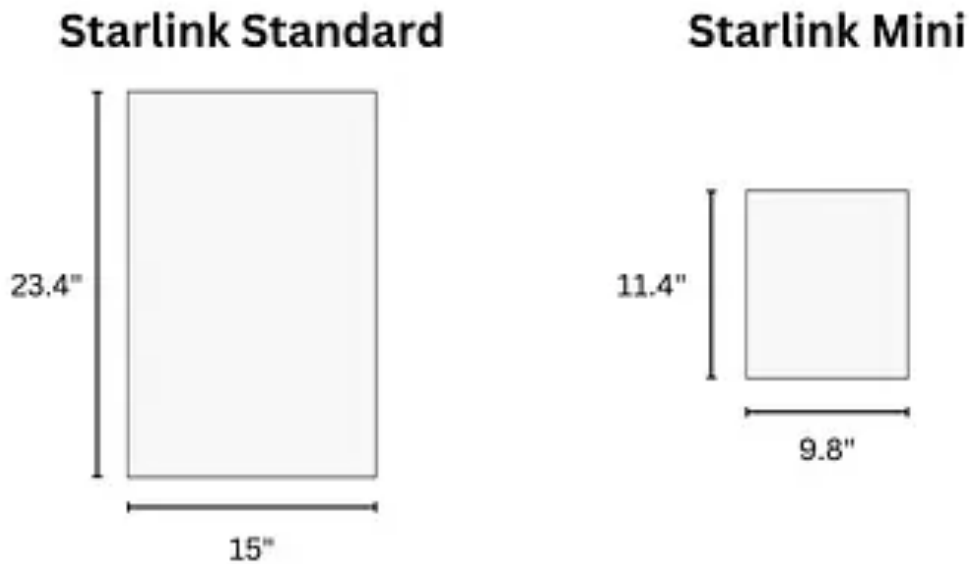


Image courtesy of StarlinkHardware.com

The most obvious aspect of the Starlink Mini is that it's smaller - roughly the size of a laptop, as shown above.

Beyond the smaller size, [Starlink Mini](#) is optimized for portable use, including:

- Lightweight - under 3 pounds,
- Integrated Wi-Fi (Wi-Fi 5 standard) (no separate Wi-Fi router / power supply),
- DC power input, 12-48 volts DC. There will be apparently be an optional "USB-C to Barrel Jack Cable Accessory", thus you apparently can use battery units provide a USB-C power outlet.
- Lower power consumption; 25 - 40 watts.

Starlink Mini also seems usable for fixed (or mobile) use by including a number of features that could have been omitted for "cost optimization", including ability to mount on a pipe (pipe mount is included), an Ethernet port, and most surprisingly, the heating element to be able to melt snow or ice buildup.

Like the current (Gen 3) Starlink Standard unit, optimum performance of the Starlink Mini will depend on the user orienting it optimally per the Starlink app on a mobile phone.

One of the most notable features of Starlink Mini is (as "reportably" as an Elon Musk "tweet" can be) that Starlink Mini will sell at "half" the price as a Starlink Standard unit - \$300 versus \$600, though there was a recent price drop of the latter to \$499, so perhaps Starlink Mini might be priced at \$250.

This week, Starlink has done a "dribbling release" of details about Starlink Mini, as well-documented by StarlinkHardware:

- [First look at the upcoming Starlink Mini](#)
- [More Starlink Mini details leaked, 12V and USB-C confirmed](#)
- [Accessories for the Starlink Mini revealed](#)
- [Some Starlink customers get early access to the new “Mini” dish for \\$599](#)

In the US, some existing Starlink customers are receiving invitations to purchase the Starlink Mini hardware for \$599 (yes, that’s \$100 more than the “full size, full service unit), with a service plan of \$30 / month for up to 100 Mbps download speeds and 50 GB of transfer. That service plan *is in addition to* an existing Starlink service contract.

Starlink [explains this rationale](#) in the Support section of their website:

Currently, the purchase of Starlink Mini is limited to a small group of customers in the US and is invitation only. We are unable to accommodate order requests from customers who did not receive an invitation.

Starlink Mini will expand to other markets over time. However, we do not have estimated dates to provide at this time. Stay tuned for updates on the wider release of Starlink Mini!

Our goal is to reduce the price of Starlink, especially for those around the world where connectivity has been unaffordable or completely unavailable. But in regions with high usage, where Starlink Mini places additional demand on the satellite network, we are offering a limited number of the Starlink Mini Kits to start for \$599.

This makes sense... those who accept this offer can get a more portable Starlink unit when they are traveling, and Starlink gets to “beta test” the unit with customers who are willing to pay full price, without sacrificing profit margins from existing service plans. The selective invitations won’t add to Starlink service being already at (or past) capacity in certain parts of the US, such as the major metro areas of California.

There was also a mention that the latency of Starlink can be lower than than cable Internet, which I can easily believe given the vagaries I experienced with Comcast on our neighborhood’s 20-30 year old coaxial infrastructure. Glancing at my Starlink status panel as I compose this article...

LATENCY: Min: 20 ms * Max 115 ms * Last 27 ms

It’s pure speculation on my part, but Starlink Mini will open up entirely new use cases for Starlink such as remote monitoring. Imagine monitoring a power substation, including live video (and even live *infrared* video to see hotspots developing in the equipment).

It’s also speculation that Starlink Mini is optimized so well that organizations involved with emergency communications (in the US, such as Red Cross and Salvation Army) will be able to hand over a backpack or rugged (“Pelican”) case to volunteers to deploy to a remote area that has lost communications. Or a search and rescue operation in a remote area. The package will include a Starlink Mini, perhaps a mag mount for temporary installation on a vehicle roof, lots of various cables, a battery unit good for several days of operation, perhaps even a ruggedized solar panel, and a phone or two that has apps preinstalled for voice comms, telephony-over-Wi-Fi, video, assessment survey apps, email, etc.

The most disruptive aspect of Starlink that many observers simply don't understand, because we've never had such a communications system previously, is that each square mile, per hertz, per second, per satellite that *isn't* fully utilized is *additional potential for revenue* for Starlink. Each Starlink satellite in the constellation is "paid up" by each satellite's time providing service to customers (US, Canada, Western Europe, etc.) who *can* pay higher prices for Starlink service. Thus if there are places that cannot afford that price point in the orbital path of each satellite, Starlink can sell a lower-cost, but still-attractive service package and capture additional revenue from each satellite.

I'll further speculate that Starlink Mini will eventually become a full product in the US for a price point of \$300, with a service plan of no more than \$50 / month for up to 100 Mbps download and 50 GB of transfer, and *probably* allow mobile and marine use as it's simply easier to accommodate a smaller antenna on a vehicle. I'll guess that long term, Starlink will add other service tiers and allow Starlink Mini to be turned on and off for camping season, skiing season, beach season, etc.

As for Amateur Radio... once Starlink Mini is a full product, I'll leave it to readers to imagine a future for Amateur Radio emergency communications versus such a capability.

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Preview - Building Back *Better* Amateur Radio Networks

By Steve Stroh N8GNJ

I didn't make as much progress on this article this week as I'd hoped, but I did write enough to justify a "preview" of the full article that I hope to complete in the next couple of weeks.

...

*I'm seeing increasing numbers of Amateur Radio **radio** networks. We've never had better radio network building blocks for groups of Amateur Radio Operators to experiment with, learn on, and have fun with.*

My inspiration for this article was that apparently I hit some mental threshold of seeing yet another casual mention of yet another Amateur Radio *radio* network, and realized with a startle that such activity has become so ubiquitous, and perhaps so subtle, that most of us "don't see the forest for the trees".

For Amateur Radio Operators from my generation of Amateur Radio - first active in the 1980s when extended packet radio (and Packet Radio Bulletin Board System forwarding), active and growing Amateur Radio *radio* networks were the norm, and constantly growing and improving.

Then... the general public was able to use the Internet through dialup connections, and Packet Radio and Packet Radio BBS use looked primitive by comparison.

Despite many / most packet radio and BBS networks falling into disuse, many Amateur Radio *radio* networks never went away. And, many new Amateur Radio networks have quietly come into being, but not widely recognized outside their area.

What has changed between "the Internet happened" and now is that TCP/IP became *the* for

networking, and it has become the defacto method to bridge disparate Amateur Radio networks. In the packet radio era, it was a heavy lift for the typical devices such as TNCs to be able to interoperate with TCP/IP - convert the TNC to a KISS TNC, set up KA9Q NOS on a DOS PC, etc.

But in this era, we have \$35 computers with ample memory, compute power, and especially ample Input / Output to function as a router. For example, [JNOS](#) can route between AX.25 packet radio connections (which know nothing of TCP/IP) and an “advanced” TCP/IP network such as New Packet Radio.

Amateur Radio now has a plethora of networking tools... and networks, many that are operating entirely independently. Thus what remains is to highlight and recognize those local and regional networks and perhaps bridge them into an integrated whole of networking to be usable as “ARNet”. I use this name to differentiate from [AMPRNet](#) which is a registered domain name (.org) that is used by Amateur Radio Digital Communications (ARDC).

*In the full version of this article, I'll discuss various Amateur Radio **radio** networking technologies and a few networks that I know of, so Zero Retries readers can begin to see the same individual “trees” in the “forest” of Amateur Radio network capabilities, that I have been seeing for a while now.*

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ZR > BEACON

By Steve Stroh N8GNJ

Short mentions of Zero Retries Interesting items.

[Career Days Makes Debut at HAM \[RADIO 2024\]](#)

Amateur Radio Newsline Report 2434 for 2024-06-21:

PAUL/ANCHOR: For our final story we visit the international Ham Radio exhibition in Friedrichshafen [Freed-Ricks-Harf-Ven], Germany, which will have its doors open between the 28th and 30th of June. This year's event has found a way to combine the amateur with the professional - and Jeremy Boot G4NJH tells us how.

JEREMY: Employers in technical fields and prospective job candidates will have a chance to meet up for the first time this year in Friedrichshafen to see who is hiring and who is hunting. According to the organisers' website, the job marketplace recognises that hams are ideal candidates for employment in technical fields and their amateur skills fit well in a professional environment. Career days will be held for two days - the 28th and 29th of June.

Visitors can now have a lot more to look forward to than a fancy new state-of-the art rig: They will perhaps find a new way to afford it.

This is Jeremy Boot G4NJH.

Hmmm... glad to see that phonetic explanation of Friedrichshafen - I'd always heard it pronounced Freed-Rick-Stoff-Ven - Thanks Amateur Radio Newslane!

Waxing nostalgic a bit, I remember when US employers looking for technical personnel to hire would have “we’re looking for help” booths at Hamvention. I haven’t seen that in the last several Hamventions that I’ve been able to attend. *Kudos for HAM RADIO 2024* for arranging this, and those employers that are recruiting will find a plethora of good candidates that are self-motivated to educate themselves about current and future radio technology.

[Digirig Lite Rev. 1.2](#)



Image courtesy of digirig.net

[Digirig Lite is] a minimalistic version of Digirig with the same audio [codec] as [regular model of the interface](#) but without serial port.

- Combines audio codec and PTT switch
- Supports PTT by GPIO3 of CM108 audio codec

- Supports VOX PTT by the tone on the unused right channel (experimental)
- Works with all major OS flavors: Windows, MacOS and Linux
- Uses a single TRRS connector compatible with existing Digirig audio cables
- Growing collection of pre-made cables including popular Icom, Yaesu, Elecraft, Baofeng, Xiegu transceivers
- Isolation can be easily added using inexpensive [USB isolator](#) dongle

The new revision of Digirig Lite got its enclosure, cable form factor with USB-C tail and USB-A adapter included. Other changes include added indicators for power and PTT, significantly improved PTT by tone/VOX. Solder pads for individually disabling PTT by GPIO3 and VOX. Pad easy access to codec's GPIO lines used for COS and CTCSS.

Digirig, and especially Digirig Lite Rev. 1.2 is just an elegant, well-integrated piece of hardware!

Status of the Connect Systems M17 Project - 2024-06-19

Connect Systems email list:

The two production radios have shipped to the developers as promised late last month. The status of those radios are shown below. The production radios are now ready to be modified and shipped to the customers who have already bought the radios. I will generate another email blast when I have a more definite date on shipping to the customers who have already bought the radio.

If you are in Europe and going to the Ham Convention, you should see the production radios in operation.

[2024-06-14]

RX works, TX needs some more adjustment because the transmitted signal is distorted. I need to investigate further where the problem is.

[2024-06-18]

Hardware modifications are good to go, both TX and RX work and the transmitted audio is loud.

I just want to see if changing a resistor on the baseband path improves a bit the modulation quality, but is not a mandatory change.

Sounds like we're very close to having portable radios with *native* M17 capability!

[ARDC is Hiring: Technology Department Manager](#)

ARDC seeks an experienced Technology Department Manager to join our team and lead all technology efforts. These include, but are not limited to, overseeing the following

department initiatives and personnel management:

- Activities of 44Net, and IPv4 address space allocated to amateur radio;
- Open-source software development projects; and
- General internal IT system administration, including streamlining existing systems and helpdesk.

In addition to having solid management experience in a technical field, this person must also be an excellent communicator – able to write policy, wrangle volunteers, and manage open-source technology development that includes staff, volunteers, and contractors. The ideal candidate will have demonstrated the ability to effectively communicate with executive-level management on a regular basis. It is expected you will prepare management reports and complex technical documents that are well written, appropriately and effectively organized, accurate, and comprehensive, meeting all professional standards.

Direct reports to this position include technical contractors and staff; the department is also supported by communications and operational staff, and 60-70 volunteers are working in association with our technical activities. This position reports to the Executive Director.

Some important notes about this role:

- **Experience and history with amateur radio and the Internet is required.** Many of the people we work with, projects we take on, and communities we make grants to are rooted in amateur radio, and our particular realm of focus intersects heavily with the information technology and hacker communities. **Applicants without an active amateur radio license will not be considered.**
- **Experience working with nonprofits and/or open-source technology projects is required.** There are nuances of working in nonprofit and community-driven environments, including participation in open-source technology projects, that can only be learned through experience – such as collaborative decision-making and best practices in engaging with open-source development. **Experience in one or both of these areas is required for this role; applicants without such experience will not be considered.**

This is a *challenging* position, requiring equal parts managerial, networking, and general software / technical skill. From my time volunteering on the ARDC Grants Advisory Committee, I witnessed that ARDC's "technology stack" is... let's just say *varied*... and in need of improvement. And, the position entails considerable cat-herding, judging from the discussions on the various ARDC mailing lists.

Zero Retries readers, *please pass the word about this position*. With the numerous specialized requirements for this position, ARDC will have to cast a very wide net to find the right person. ARDC is critical to the future of Amateur Radio, and this position is critical to the future of ARDC.

From the VarAC mailing list. These are the two most salient features (to me).

Chat Recall

Have you ever found yourself reconnecting with someone only to ask the same questions again? You know you've chatted before; you see their basic details on screen, but the specifics escape you. That's where Chat Recall steps in.

Upon connection, your data stream seamlessly incorporates previous correspondences with this contact. Just like in WhatsApp, where even after a year, you can effortlessly revisit past chats to refresh your memory.

DCD Bypass

By default, VarAC respects the busy indicator and prevents you from transmitting in any way while the BUSY indicator is lit. This means no CQs, beacons, broadcasts, or connections.

However, sometimes constant noise, such as an OTH radar or deliberate QRM, can block the frequency.

Version 9.2.3 allows you to temporarily override the DCD detector and ignore the BUSY indicator. You can enable this by checking the box on the right side of the VarAC console. VarAC will automatically turn it off after 2 hours.

Starting with VarAC V9.2.3, the send broadcast form includes a checkbox to request an SNR report in your broadcast. This signals the recipient to send you a report back automatically.

Please note that this feature is only available when sending a broadcast to a specific station. You can't request a report from "ALL".

[QO-100 Satellite Ground Station Complete Build](#)

Mike Tatum M0AWS on his blog:

I get quite a few emails from readers of my blog asking how my QO-100 satellite station is put together and so, I thought perhaps now is a good time to put together an article detailing the complete build.

My QO-100 satellite ground station is built around my little Icom IC-705 QRP transceiver, it's a great little rig and is ideal for the purpose of driving a 2.4Ghz transverter/up-converter.

Of course all the software used for the project is Opensource and freely available on the internet.

The station comprises of the following building blocks:

- Icom IC-705 Transceiver

- DXPatrol 28/144/433Mhz to 2.4Ghz Up-Converter
- DXPatrol GPSDO Reference Oscillator
- DXPatrol 2.4Ghz 5/12w Amplifier
- Nolle Engineering 2.2 turn 2.4Ghz IceCone Helix Antenna
- 1.1m (110cm) Off-set Dish
- Bullseye 10Ghz LNB
- Bias-T to feed 12v to LNB
- NooElec SmartSDR Receiver
- PC Running Kubuntu Linux Operating System
- GQRX SDR Opensource Software
- Griffin Powermate USB VFO Knob
- QO-100 Ground Station Dashboard developed using Node-RED
- LMR400-UF/RG58 Coax Cable

This is a great article with ample detail, but if you're a US reader, like me, it'll make you itch to have a similar capability to QO-100 in the Western Hemisphere.

My thanks to [Amateur Radio Weekly Issue 334](#) for the pointer to this story.

Related, also mentioned in ARW Issue 334:

[TX Factor Episode 30 - To space and back - TX date 7th June 2024](#)

Bob G0FGX demonstrates the Groundstation 2 from DX Patrol in the first of a two-part feature on operating via the QO-100 geostationary satellite. He looks at the hardware and software needed to achieve your first QSO at home or out mobile.

[Foundations of Amateur Radio Episode 010 - Do Your Thing and Find Friends to Play With](#)

Today in Amateur Radio is no different from yesterday, last year, last decade or longer. The hobby today is filled with people who are here to have fun, learn stuff and experiment. This hasn't changed since our hobby came into being.

You can argue that the hobby has seen a great many changes. We have seen spark-gap transmitters, valves, transistors, miniaturisation, chips and now software defined radios. The experimental nature of our pursuit has not changed.

We still spend time looking for cool stuff to do and people to do it with.

And that's the single point I'd like to make.

Finding people “to do it with”.

If you're a new amateur you might look to a club or your fellow classmates to combine your efforts. This can be a great way to forge life-long friendships and it's a sure fire way to find exposure to other ideas and activities.

There might come a time when you find yourself at a loss what to do next, or who to do it with. You might lament that the group you're hanging out with are not doing fun stuff anymore, or that activities never quite happen or any number of observations that make it less fun to be part of amateur radio.

I've now been here for a little while and I've noticed that some of my fellow amateurs have fallen by the way-side. Of course family and changing interests will account for some of that, but often it's a lack of something to do that makes people fade away.

There is nothing stopping you from organising your own event. You can plan a camp-out, or an antenna testing day, or a DX activity, a contest, an activation, some software hacking, or hardware building, soldering training, learning how to log, how to do a QSO, or any number of other things.

If you tell the community about it, you're likely to be surprised by some other amateur who was just thinking to do the same thing.

So, don't wait for someone else to do your fun activity. If you focus on doing things that you enjoy, you might find a few like-minded friends who will participate.

I'm keen to hear your ideas and activities, so drop me a line.

I'm Onno VK6FLAB

*Good advice, which has direct bearing my (lack of) enthusiasm for participating in (conventional) ARRL Field Day activities. Perhaps for Field Day 2025 I can find some kindred Zero Retries Interesting folks in Western Washington (or the Pacific Northwest region) that would also be interested in a **data-modes-only** ARRL Field Day.*

I've been meaning to mention the excellent **Foundations of Amateur Radio** podcast by [Onno Benschop VK6FLAB](#) in Zero Retries for some time now. To date, VK6FLAB has created [470 weekly \(?\) episodes](#). I enjoy FoAR because a number of episode topics are Zero Retries Interesting, but also because FoAR is a “solo” podcast with an accompanying transcription / script. That's a podcast model that is very similar to what I plan to do for Zero Retries. FoAR's model of discussing a *single, distilled topic* is *far more workable* than attempting to discuss the variety of topics that I mention in a typical issue of Zero Retries.

... the transcript of the weekly 'Foundations of Amateur Radio' podcast, produced by Onno Benschop, VK6FLAB who was licensed as radio amateur in Perth, Western Australia in 2010. For other episodes, visit <http://vk6flab.com/>. Feel free to get in touch directly via email: cq@vk6flab.com.

Each week / episode, VK6FLAB publishes the script / transcript via an [email list](#), and thus it's easy, and time-efficient to determine if a FoAR episode is “Zero Retries Interesting” and thus worth queuing up for my limited “audio time”. (I'm a far faster reader than a listener, so I now read the text each week.) Yes, in reading the text, I get the basic information, but as listeners pointed out in my

podcast experiments, audio adds more depth than what mere text can convey.

I wish more Amateur Radio podcasts could do the same thing as FoAR; many Amateur Radio podcasts that are potentially Zero Retries Interesting don't bother to publish show notes (and apparently aren't popular enough to have Apple Podcast apps create an automatic transcript), so I tend to not queue those up unless the title hints of a Zero Retries Interesting topic.

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Join the *Fun* on Amateur Radio

If you're not yet licensed as an Amateur Radio Operator, and would like to join the fun by *literally having a license to experiment with radio technology*, check out

Join the Fun on Amateur Radio for some pointers.

Zero Retries Frequently Asked Questions (FAQs) — In development 2023-02.

Closing the Channel

In its mission to highlight technological innovation in Amateur Radio, promote Amateur Radio to techies as a literal license to experiment with radio technology, and make Amateur Radio more relevant to society in the 2020s and beyond, Zero Retries is published via email and web, and is available to everyone at no cost. Zero Retries is proud *not to participate* in the Amateur Radio Publishing Industrial Complex, which hides Amateur Radio content behind paywalls.

My ongoing *Thanks* to:

- Tina Stroh KD7WSF for, well, *everything!*
- **Founding Members who generously support Zero Retries financially:**
 - Founding Member 0000 - Steven Davidson K3FZT
 - Founding Member 0001 - Prefers to Remain Anonymous 01
 - Founding Member 0002 - Chris Osburn KD7DVD
 - Founding Member 0003 - Don Rotolo N2IRZ
 - Founding Member 0004 - William Arcand W1WRA
 - Founding Member 0005 - Ben Kuhn KU0HN
 - Founding Member 0006 - Todd Willey KQ4FID
 - Founding Member 0007 - Merik Karman VK2MKZ
 - Founding Member 0008 - Prefers to Remain Anonymous 14
 - Founding Member 0009 - Prefers to Remain Anonymous 19
- Numerous Annual and Monthly subscribers who also generously support Zero Retries financially!

Want to Support Zero Retries?

- The *most* effective way to support Zero Retries is to simply mention Zero Retries to your co-

conspirators that are also interested in knowing more about technological innovation that is occurring in Amateur Radio and encourage them to become a fellow subscriber.

- One particularly effective method of promoting Zero Retries is to add a mention of Zero Retries to your [QRZ](#) page (or other web presence) and include a link:

<https://www.zeroretries.org>

- If you'd like to financially support Zero Retries, becoming a paid subscriber is *greatly* appreciated and helps offset expenses incurred in publishing Zero Retries. Paid subscriptions for Zero Retries are *entirely optional*, as explained in this special issue of ZR: Zero Retries Administrivia - Activating Payment Options.

These blogs and newsletters regularly feature Zero Retries Interesting content:

- [Dan Romanchik KB6NU](#) mentions “Zero Retries Interesting” topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.
- [Jeff Davis KE9V](#) also mentions “Zero Retries Interesting” topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.
- [Amateur Radio Weekly](#) by Cale Mooth K4HCK is a weekly anthology of links to interesting Amateur Radio stories that often feature “Zero Retires Interesting” topics.
- [Experimental Radio News](#) by Bennet Z. Kobb AK4AV discusses (in detail) Experimental (Part 5) licenses issued by the US FCC. It's a *must-read-now* for me!
- [RTL-SDR Blog](#) - *Excellent* coverage of Software Defined Radio units.
- [TAPR Packet Status Register](#) has been published continuously since 1982.
- [Hot Iron - The Journal of the Constructor's Club](#) is a delightful quarterly newsletter.
- Other Substack Amateur Radio newsletters recommended by Zero Retries.

These YouTube channels regularly feature Zero Retries Interesting content:

- [HB9BLA Wireless](#) by Andreas Spiess HB9BLA
- [KM6LYW Radio](#) by Craig Lamparter KM6LYW (home of the [DigiPi project](#))
- [Modern Ham](#) by Billy Penley KN4MKB
- [Tech Minds](#) by Matthew Miller M0DQW

These podcasts regularly feature Zero Retries Interesting content:

- [Ham Radio Workbench](#) by George Zafiropoulos KJ6VU (and friends)

Zero Retries is currently using the [Substack email publishing platform](#) to publish Zero Retries. It's particularly suitable for small newsletters as you can get started for no cost.

If you're reading this issue on the web and you'd like to see Zero Retries in your email Inbox every Friday afternoon, just click below to join **1800+** other subscribers:

Subscribe now

Please tell your co-conspirators about Zero Retries — just click:

Share Zero Retries

Offering **feedback or comments** for Zero Retries is equally easy — just click:

Leave a comment

If you're a fellow smart person that uses **RSS**, there *is* an **RSS feed for Zero Retries**.

Social Media:

Zero Retries (N8GNJ) is on Mastodon — n8gnj@mastodon.radio — just click:

[Zero Retries / N8GNJ on Mastodon](#)

Zero Retries (N8GNJ) is also on Bluesky — [@n8gnj](#) — just click:

[Zero Retries / N8GNJ on Bluesky](#)

Email issues of Zero Retries are “instrumented” by [Substack](#) to gather basic statistics about opens, clicking links, etc.

More bits from Steve Stroh N8GNJ:

- [SuperPacket blog](#) — *Discussing new generations of Amateur Radio Data Communications — beyond Packet Radio (a precursor to Zero Retries)*
- [N8GNJ blog](#) — *Amateur Radio Station N8GNJ and the mad science experiments at N8GNJ Labs — Bellingham, Washington, USA*

Thanks for reading!

Steve Stroh N8GNJ / WRPS598 (He / Him / His)

These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful Bellingham ([The City of Subdued Excitement](#)), Washington, USA, and linked to the Internet via [Starlink Satellite Internet Access](#).

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